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EXAMINER	
STRZELECKA, TERESA E	
ART UNIT	**PAPER NUMBER**
1637	9

DATE MAILED: 11/27/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/866,283	Applicant(s) RUNDELL ET AL.	
	Examiner Teresa E Strzelecka	Art Unit 1637	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 August 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

4a) Of the above claim(s) *12-22* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11,23-25,28,31 and 32* is/are rejected.

7)☒ Claim(s) *26, 27, 29, 30* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 May 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *5* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I (claims 1-11 and 23-32) in Paper No. 7 is acknowledged.

2. Claims 12-22 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 7.

3. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Drawings

4. The drawings are objected to under 37 CFR 1.83(a) because they fail to show the following details as described in the specification:

A) In Figure 3, lane numbering is not clearly visible.

B) Figure 7 is an image of a gel which depicts "... the amplification products of a research PCR based FV assay which was performed on samples similar to those depicted in Figure 6..." (page 15, lines 8-12, emphasis added). Gel in Figure 6 has 14 lanes with different samples, and the gel in Figure 7 has only nine sample lanes, therefore it is not clear what samples were run on the gel shown in Figure 7. No other place in the specification describes what were the samples which are shown in Figure 7.

C) Figure 8 is an image of a gel which depicts "... the amplification products of a research PCR based FV assay which was performed on samples similar to those depicted in Figure 6..." (page 15, lines 13-16, emphasis added). Gel in Figure 6 has 14 lanes with different samples, and the gel in Figure 8 has only six numbered sample lanes, therefore it is not clear what samples were run on the gel shown in Figure 8. No other place in the specification describes what were the samples which are shown in Figure 8.

Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance. No new matter should be introduced.

Specification

5. The disclosure is objected to because it contains an embedded hyperlink and/or other form of browser-executable code. Applicant is required to delete the embedded hyperlink and/or other form of browser-executable code. See MPEP § 608.01.

The hyperlinks are present on the following pages: 23, line 28; 24, line 12; 38, lines 15, 17, 18 and 22.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 1-11 and 23-32 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for nucleic acid standard comprising target DNA bound to nylon, polystyrene, silica gel, liposome, aminopropyl glass or low alumina zeolyte particles

microparticles in a solution comprising ethanol or acetate + isopropanol, does not reasonably provide enablement for all types of nucleic acids bound to all possible types of microparticles in all possible solutions. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

Applicants described in the examples target DNA molecules bound to the following types of microparticles: nylon, amine-modified polystyrene, liposomes , silica gel, aminopropyl glass, fumed silica, fumed silica together with chitosan and low alumin zeolyte. The solutions in which the standard was stored were either 70% or 100% ethanol, acetate + isopropanol. No evidence was shown of solutions comprising oil or wax base. In addition, no evidence was shown that the procedures for preparation of the DNA standards were applicable to RNA, which is of concern because of the high sensitivity of RNA molecules to RNAses.

Due to the large quantity of experimentation necessary to determine conditions for producing stable nucleic acid standards by binding all possible nucleic acids to all possible types of microparticles and for producing stable RNA standards, the lack of direction provided in the specification for producing stable nucleic acid standards by binding all possible nucleic acids to all possible types of microparticles and for producing stable RNA standards, the absence of working examples directed to producing stable nucleic acid standards by binding all possible nucleic acids to all possible types of microparticles and for producing stable RNA standards, undue experimentation would be required of the skilled artisan to make and use the claimed invention in its full scope.

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 1-11 and 23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A) Claim 1 is indefinite because of the limitation "stable isolated nucleic acid reference standard". Applicants have not provided a definition of what is meant by "stable". On page 24, lines 26-31 there is a statement that the nucleic acid standard is stable in that it can be maintained at room temperature for prolonged periods of time without significant loss of signal. However, temperature is only factor involved. What is the form of the standard (in solution or dried), and if in solution, what is it's composition and how does it affect the stability. There is also no precision in the statement that there is no significant loss of signal, since the signal level will depend on assay conditions and a type of assay in which the standard is used.

B) Claim 1 is indefinite because of the limitation "... target nucleic acid is not substantially detected in a nucleic acid assay". Since the level of detection will depend on the type of the assay, it is unclear in what type of nucleic acid assays will the standard be undetectable.

C) Claim 2 recites the limitation "said binding agent" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim.

Double Patenting

10. Claim 11 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 1. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

11. Applicant is advised that should claim 1 be found allowable, claim 11 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

12. The following art rejections are based on the interpretation of the claims 1, 23 and 24 as drawn to a composition comprising a target nucleic acid and a microparticulate binding agent, since it is unclear what structural feature is described by the limitation that the target nucleic acid is not substantially detected in a nucleic acid assay, especially since it is not clear in which assays the nucleic acid is not detected.

Claim Rejections - 35 USC § 102

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –

14. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

15. Claims 1, 2, 8-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Hayashida et al. (Gene, vol. 165, pp. 155-161, 1995).

Regarding claims 1, 2, 8 and 11, Hayashida et al. teach a genomic DNA fragment covalently bound to latex particles, composed of polystyrene core (Abstract, Figure 1). The genomic DNA

used was either from λ phage (a 546 bp fragment), or fragments from *Arabidopsis thaliana* YAC clone EG10D9. Latex-bound DNA was stable for several months page 156, 157, 158 (first paragraph).

Regarding claim 9, Hayashida et al. teach linear DNA fragments (Fig. 2, page 157, fifth paragraph).

Regarding claim 10, Hayashida et al. teach using the latex-bound DNA in hybridization assay (Fig. 2) and selection of cDNA clones (Fig. 3).

16. Claims 1, 2, 5, 8-11, 23-25, 28, 31 and 32 are rejected under 35 U.S.C. 102(b) as being anticipated by van Gemen et al. (PCR Primer: A Laboratory Manual, Cold Spring Harbor Laboratory Press, pp. 667-677, 1995).

Van Gemen et al. teach a nucleic acid assay in which genomic HIV-1 RNA is bound to silica suspension together with three RNA internal standards using QT kit from Organon Teknika (page 668, 669, Fig. 1).

17. Claims 1, 2, 8-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Hayatsu et al. (Chem. Pharm. Bull., vol. 45, p. 1363-68, 1997).

Regarding claims 1, 2, 8 and 11, Hayatsu et al. teach genomic DNA (calf thymus and salmon testis) bound to chitosan. The nucleic acid-chitosan complex was insoluble and the nucleic acid was tightly bound to the chitosan (Abstract, page 1363).

Regarding claim 9, Hayatsu et al. teach linear DNA (page 1363, second paragraph).

Regarding claim 10, Hayatsu et al. teach that the complexes were used in a digestion assay with DNAse I and phosphodiesterase (page 1363, the last paragraph).

18. Claims 1, 2, 8-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Kariko et al. (Biochim. Biophys. Acta, vol. 1369, p. 320-334, 1998).

Regarding claims 1, 2, 8 and 11, Kariko et al. teach plasmid DNA or its mRNA transcript bound to cationic liposomes, composed of 1:1 mixture of DOTMA (N-[1-(2,3-dioleyloxy)propyl]-n,n,n-trimethyl-ammonium cloride) and DOPE (dioleoyl phosphatidylethanolamine) (Abstract, page 321, the last paragraph; page 322, paragraphs 1-3).

Regarding claim 9, Kariko et al. teach non-linear nucleic acid (DNA plasmid) and linear nucleic acid (mRNA) (page 321, the last paragraph).

Regarding claim 10, Kariko et al. teach that the complexes were used to treat HSO (human osteosarcoma cell line) cells to determine the effectiveness of transfection (page 322; Fig. 1).

Claim Rejections - 35 USC § 103

19. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

20. Claims 23-25, 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayashida et al. as applied to claim 1 above, and further in view of Stratagene Catalog (p. 39, 1988).

A) Claims 23-25 are drawn to a kit comprising target nucleic acid, binding agent, applicator and instructional material, where the binding agent is polystyrene. Claim 31 is drawn to the target nucleic acid being a ribonucleic acid or deoxyribonucleic acid, and claim 32 is drawn to a target nucleic acid being a linear or non-linear nucleic acid.

B) The teachings of Hayashida et al. are described above. Hayashida et al. do not teach kits.

C) Stratagene catalog teaches a motivation to combine reagents into kit format (page 39).

It would have been *prima facie* obvious to one having ordinary skill in the art at the time the

invention was made to combine the ingredients of Hayashima et al. into a kit format as discussed by Stratagene catalog since the Stratagene catalog teaches a motivation for combining reagents of use in an assay into a kit, "Each kit provides two services: 1) a variety of different reagents have been assembled and pre-mixed specifically for a defined set of experiments. Thus one need not purchase gram quantitites of 10 different reagents, each of which is needed in only microgram amounts, when beginning a series of experiments. When one considers all of the unused chemicals that typically accumulate in weighing rooms, desiccators, and freezers, one quickly realizes that it is actually far more expensive for a small number of users to prepare most buffer solutions from the basic reagents. Stratagene provides only the quantitites you will actually need, premixed and tested. In actuality, the kit format saves money and resources for everyone by dramatically reducing waste. 2) The other service provided in a kit is quality control" (page 39, column 1).

21. Claims 23-25, 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayatsu et al. as applied to claim 1 above, and further in view of Stratagene Catalog (p. 39, 1988).

A) Claims 23-25 are drawn to a kit comprising target nucleic acid, binding agent, applicator and instructional material, where the binding agent is polystyrene. Claim 31 is drawn to the target nucleic acid being a ribonucleic acid or deoxyribonucleic acid, and claim 32 is drawn to a target nucleic acid being a linear or non-linear nucleic acid.

B) The teachings of Hayatsu et al. are described above. Hayatsu et al. do not teach kits.

C) Stratagene catalog teaches a motivation to combine reagents into kit format (page 39).

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22. Claims 23-25, 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kariko et al. as applied to claim 1 above, and further in view of Stratagene Catalog (p. 39, 1988).

A) Claims 23-25 are drawn to a kit comprising target nucleic acid, binding agent, applicator and instructional material, where the binding agent is polystyrene. Claim 31 is drawn to the target nucleic acid being a ribonucleic acid or deoxyribonucleic acid, and claim 32 is drawn to a target nucleic acid being a linear or non-linear nucleic acid.

B) The teachings of Kariko et al. are described above. Kariko et al. do not teach kits.

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accumulate in weighing rooms, desiccators, and freezers, one quickly realizes that it is actually far more expensive for a small number of users to prepare most buffer solutions from the basic reagents. Stratagene provides only the quantitites you will actually need, premixed and tested. In actuality, the kit format saves money and resources for everyone by dramatically reducing waste. 2) The other service provided in a kit is quality control" (page 39, column 1).

23. No references were found teaching or suggesting claims 3, 4, 6, 7, 26, 27, 29 and 30. Claims 3, 4, 6 and 7 are rejected for other reasons. Claims 26, 27, 29 and 30 are objected to as being dependent on the rejected claims 24 and 25.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Teresa E Strzelecka whose telephone number is (703) 306-5877. The examiner can normally be reached on M-F (8:30-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Benzion can be reached at (703) 308-1119. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-4242 for regular communications and (703) 305-3014 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.

TS
November 25, 2002

KENNETH R. HORLICK, PH.D
PRIMARY EXAMINER
11/26/02